Lat 40.64358 Lon -121.43985

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Subject: Red turpentine beetle attacks following thinning in the Twin Salvage Project (previously Potato Thinning) Report #NE96-7

To: District Ranger, Hat Creek Ranger District, Lassen National Forest

At the request of John Robbins and Rhonda Barnhart, I visited some units in the Twin Salvage Project area. District personnel had expressed concern that some of the residual pine trees had been attacked by red turpentine beetle, Dendroctonus valens. The objective of the field visit was to examine some of the trees to confirm the presence of red turpentine beetle and to discuss what effects the attacks may have on tree survival. The field visit was conducted on May 7, 1996. Trees in Units 2 and 10 were examined.

Unit 2 is comprised primarily of Jeffrey pine and was thinned during March of 1995. Unit 10 is a mixed conifer stand which includes ponderosa and Jeffrey pine, incense cedar and white fir. This Unit was thinned during April of last year. Several size and age classes are present throughout both units. Following thinning last year several of the residual ponderosa and Jeffrey pine trees were attacked by red turpentine beetle. In addition to the attacks made in 1995 there was evidence of new (1996) attacks on some trees. In general, attacked trees range in size from about 8 in. DBH to 25 in. DBH. The number of attacks (pitch tubes) on the individual trees we examined ranged from 2 to 100+. Both successful and unsuccessful attacks were present.

Characteristic of red turpentine beetle, most attacks were within the first few feet around the base of the tree, however, it was not uncommon to find attacks up as high as 10-15 ft. We did not observe any logging wounds on the residual trees however several of the attacked trees were in close proximity to cut stumps. The majority of the cut stumps had red turpentine beetle attacks as well, and in general, beetle development was similar to that in the standing trees. Based on this observation it is likely that the beetles were attracted to the cut stumps and spilled over into the residual trees at the same time rather than developing in the cut stumps and then emerging to attack the residual trees. We observed two pines which had fading crowns and appeared to be dying as a result of excessive red turpentine beetle attacks.

The red turpentine beetle normally attacks injured, weakened or dying trees and freshly cut stumps. The adults are attracted by fresh pine resin. It is possible that the cut stumps in the Potato thinning units attracted the beetles into the nearby standing trees. A beetle-produced aggregation pheromone is also important in attracting additional beetles into suitable hosts. Attacks usually occur at the soil line or root crown and are characterized by a large reddish pitch tube at the point of entry. If an attack is successful, the adults excavate an irregular gallery in the cambium and the female lays eggs

along the sides. Attacks usually do not kill trees but may predispose them to attack by other bark beetles. Repeated or extensive attacks by the red turpentine beetle can kill pines.

Little can be done to control red turpentine beetles once they are beneath the bark. Good health and vigor in a tree are the best protection against infestation. The feeding activity of the adult beetles and their larval offspring kills a limited amount of living tissue. If enough beetles attack a tree so that feeding areas overlap the tree will die as a consequence of the girdling. The amount of beetle-related damage depends on the health of the tree therefore the exact number of attacks required to cause tree mortality cannot be predicted. Some additional bark beetle activity may occur during the summer in the heavily attacked trees. Attacks by red turpentine beetle on residual trees, similar to what has occurred in the Potato area, are not common. Several factors may have come to play in this incidence including; timing of thinning, timing of beetle development and emergence, presence of freshly cut stumps, drought stressed residual trees, etc. Elevated levels of red turpentine beetle activity was also noted in the Blacks Mountain Experimental Forest last year.

Since the stands have been thinned to the prescribed basal area the objective is to maintain as many of the residual pine trees as possible rather than attempt to predict mortality and remove currently infested trees. During the field visit it was decided that Forest Pest Management would flag and monitor some of the infested trees to determine if they die from the attacks and/or become infested by other bark beetles this year. Fifty trees have been flagged for monitoring. Updates on these trees and others in the general area will be provided throughout the year.

If you have any questions regarding this evaluation or request additional assistance please contact me at 916-257-2151 ext. 6667. Thank you.

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